Improvements in or relating to cappings for use in conservatory roof construction.

DESCRIPTION

The present invention relates to cappings for use in conservatory roof construction.

A typical glazing bar comprises an extruded aluminium elongate member having an upstanding central web and a cross-bar in the form of say transverse side arms depending from each side thereof to support glazing panels to either side thereof. The glazing bar is provided with upper and lower cappings. The cappings are made of plastics having relatively thin single skin walls.

In one known construction the upper and lower capping have gaskets along edges thereof between which roof panels, usually glazing panels, are to be retained, and means for locating the cappings on the bar. The flexibility of the single skin aids sealing of the cappings with the roof panel, but has disadvantageous thermal properties. In addition the single skin open profiles can be vulnerable to distortion under certain circumstances, for example, during transit and handling and sometimes under the influence of solar radiation, especially in the case of dark colours.

To deal with the problem of distortion aluminium cappings have been used but aluminium has a poor thermal performance relative to plastics material.

Cappings of single wall plastics material are also used for other structural members of a conservatory roof, such as ridge beams and in valley constructions, where similar problems exist due to exposure of the cappings to solar radiation.

The present invention aims to provide a solution.

According to the present invention there is provided a capping of plastics material for location on a structural member of a conservatory roof, wherein the capping is twin-walled and has means for location thereof on the structural member.

The structural member may be, for example, a glazing bar, a ridge beam or of a valley construction.

In one preferred embodiment the invention provides a glazing bar and an upper capping therefor of plastics material and means for locating the capping on the glazing bar, the glazing bar having a stem and lateral flange means for supporting roofing panels directly or indirectly, and wherein the upper capping comprises at least a twin wall construction.

For cappings of the invention, multiple walls with spacing webs may be used. Conveniently a twin wall construction is employed having inner and outer walls having a plurality of spaced webs extending therebetween to divide the twin wall construction into a plurality of chambers. Alternatively additional walls can be added to form further chambers.

Insulation material, such as foamed plastics materials, for example of PVC or other suitable materials may, be added to the walls or to fill the

chambers for enhanced thermal effects. More usually a capping of the invention has a top and two depending sides. The depending sides have a gasket along edges thereof for sealing on roofing panels retained on the glazing bar. The edges thereof extend between the ends of the inner and outer walls of the capping. The gasket conveniently forms part of said edge spanning the gap between the ends of the inner and outer walls. The gasket preferably includes a body connecting with the capping and one or more lips, which branch from the body and engage the roofing panel. More particularly the inner wall terminates at a greater distance from the roof panel than the outer wall so that the gasket is at least partially concealed by the outer wall.

More preferably, the glazing panel further comprises a lower capping, which is of twin wall construction, although it could have more than two walls. As with the upper capping web elements between the inner and outer walls define a plurality chambers. The twin skin construction, with or without foam, serves to provide improved thermal insulation compared with the known single wall cappings. The lower capping includes means for locating it with respect to the glazing bar.

More particularly, end edges of the lower capping carry respective gaskets to engage with the underside of the roofing panels.

When the upper capping is in place a duct is formed underneath it, between it and the roofing panels. More correctly two ducts are formed, one each side of the glazing bar upstand. Those ducts form a useful insulating

chamber, however it has been found that the thermal insulating properties may be further enhanced if the duct is sub-divided.

Accordingly, another preferred embodiment of the invention provides a glazing bar and an upper capping therefor of plastics material and means for locating the capping on the glazing bar, and wherein the glazing bar has a stem and lateral flange means for supporting roofing panels, and wherein the space within the capping between the stem and the roofing panel is divided into at least two chambers.

More preferably, the space is divided into inner and outer chambers. The division may be by projections formed on the stem and extending towards the inside wall of the capping. More preferably, the division is formed by projections that depend from the inside of the capping. Preferably the projections extend up to said stem. However, it is not essential that the projection make physical contact with the stem. It can stop short of the stem and still give advantageous thermal barrier effects. Where the division branches from the stem it can stop short of the capping. More preferably the dividing wall or projection is arcuate as seen in cross-section.

The various aspects of the invention will now be described further hereinafter, by way of example only, with reference to the accompany drawings; in which:-

Figure 1 is a cross-section through a roof construction embodying the glazing bar and capping according to one embodiment of the invention,

Figure 2 is an enlarged view of the gasket of the upper capping accordingly to one embodiment of the invention, and

Figure 3 is a cross-section through a roof construction embodying a glazing bar and capping according to another embodiment of the invention.

Referring firstly to Figures 1 and 2, a roof construction for use in constructing conservatory roofs comprises an aluminium glazing bar 30 having a central upstand 32 and lateral side supports 34, 36 for roofing panels 38, 40. It further comprises an upper capping 42 of plastics material comprising a twin wall construction having inner and outer walls 44,46 and a plurality of spaced webs 48 extending therebetween to define air chambers 47. One or more intermediate walls may be provided to further enhance the thermal insulation properties. The inner wall has a pair of flared legs 52, 54 with hooked ends to engage with a recess 56 in the central upstand to secure the capping with respect thereto in a manner that is well known in the art. Any other convenient means of securing the capping to the glazing bar may be used.

The capping in the embodiment of Figure 1 is generally semi-circular, as viewed in cross section, but it may take any other desired shape. However, it is to be noted that the capping provides depending sides 58 that terminate in edges that are provided with gaskets 60. More particularly in the preferred embodiment, as shown in greater detail in Figure 2, the inner and outer walls 44,46 terminate with spaced apart end regions 62, 64 and the gap therebetween is bridged by a body part 66 of the gasket 60. The gasket further comprises at least one lip seal, two in the illustrated embodiment that are directed in opposite

directions for the body connection, and that engage with the roofing panel. The gasket is made from a suitable sealing material that exhibits the desired resilience to provide a good seal with the roofing panel. Both the body part 66 and the lip elements 68, 70 will flex as necessary to provide the seal. The flexing of the body part compensates for the reduced flex exhibited by the multi skin capping construction.

It will be noted that the inner and outer end regions are spaced by different amounts from the roofing panel. More particularly, the inner end region 62 is disposed a greater distance from the roofing panel than the outer end region 64. Thus the line between the ends as inclined relative to the roofing panel rather than parallel thereto. As mentioned above, this is advantageous, because it enables the gasket to be at least partially concealed by the outer walls.

The gasket may be a separate component from the capping, but preferably it is formed integrally with it. Conveniently it is bonded in place. It may be formed as a co-extrusion, or as a post-extrusion.

The construction of Figure 1 further comprises a lower capping 80, which is co-operable with the glazing bar 30. The lower capping is generally U-shaped with a base 88 and two upstanding side walls 90, although any other desired shape may be utilised. As with the upper capping, the lower capping has at least inner and outer walls 82,84. A plurality of webs 86 extend therebetween to define a plurality of air chambers and to space apart the inner and outer walls. Intermediate walls may be provided as with the outer cappings. The respective

ends of the side walls are provided with gaskets 92,94 that provide sealing engagement with the underside of the roofing panels 38,40. The gasket has a lip 90 that is interposed between a support limb 37 of the glazing bar and the roofing panel. A further lip 98 extends in an outward direction. The gasket 92 is preferably formed integrally with the lower capping. It may be bonded thereto as part of the extrusion process of the lower capping or as a post extrusion process.

Referring now to Figure 3, this shows an alternative embodiment of capping and glazing bar, but which shares many of the features of the embodiment of figure 2 and which are identified by corresponding reference numerals and to which the foregoing description applies. The lower capping is identical to that of Figure 1. The upper capping has a different cross sectional shape. However, it is also to be noted that the space within the upper capping is divided by a protrusion 100, which in the illustrated embodiment depends from the inner wall 44 of the capping and extends up to the stem 32 of the glazing bar. Thus upper and lower air chambers 102,104 are formed to opposite sides of the stem, which gives rise to advantageous thermal effects as mentioned above.

It will be understood that the division of the space within the capping according to this aspect of the invention could be applied to cappings having a single wall construction rather than those having the multi-wall construction of the present invention.

Figure 3 also illustrates how the cavities formed by the multi-wall construction of the upper and/or lower cappings may be either filled with an insulation material, such as foamed PVC, as shown at 106, or have the insulation material applied to either wall of a cavity, as shown at 108a, 108b to provide an insulating lining. The insulation is only shown in some of the cavities, but it will be understood that in practice, where provided, it will usually be provided to the capping as a whole, e.g. to all the cavities, or to line all of one skin.

The presence of the insulating foam may avoid the need for the dividing webs 48,86. In other words the capping can be formed as a sandwich comprising skins of plastics sandwiching the foamed insulation layer therebetween.

Whilst the invention has been described with reference to cappings for glazing bars, it will be appreciated that the invention may also be applied to other plastics cappings used in conservatory roof construction, such as cappings for ridge beams and for valley constructions and especially those in positions exposed to direct sunlight.